

Serial No.: 10/550,070
Examiner: Benjamin M. Kurtz
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Amendments to the Claims:

This listing of claims will replace all prior versions, and listing, of claims in the application.

1. (Currently amended) A blood filter device comprising:
 - a housing that comprises a dome portion forming an upper part of the housing, a filter retaining portion forming a middle part of the housing, and a bottom portion forming a lower part of the housing;
 - an inlet provided on a lateral portion of the dome portion so as to allow blood to flow into the dome portion horizontally and along an inner wall of the dome portion;
 - an air vent provided at a top of the dome portion;
 - a filter for filtering a foreign substance in the blood, the filter being disposed in the filter retaining portion; and
 - an outlet for the blood, the outlet being provided in the bottom portion, the blood filter device being configured so that the blood flows into the dome portion from the inlet, passes through the filter retaining portion, and then flows out from the outlet,
 - wherein the filter is formed of a sheet-like filter member that has been folded so as to have a plurality of parallel linear pleats with enveloping surfaces connecting top ends of the respective pleats being flat so that the filter as a whole has a plate-shaped outer shape, .
 - the filter is arranged so as to partition a cavity of the housing into a dome portion side and a bottom portion side, with the pleats extending across the filter retaining portion, and
 - a plurality of holding ribs extending partially and inwardly from a wall of the filter retaining portion without crossing the filter retaining portion are provided at positions corresponding to end portions of the respective pleats, whereby the holding ribs are inserted in the end portions of the pleats, respectively.

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2. (Original) The blood filter device according to claim 1, wherein a space between an inner side wall of the filter retaining portion and an outer peripheral portion of the filter is filled with a resin so as to be sealed, and the filter is fixed to the inner side wall of the filter retaining portion with the resin.
3. (Previously presented) The blood filter device according to claim 1, wherein a ratio h/r of a height h of the dome portion to an inner diameter r of the dome portion on a filter retaining portion side is in a range from 0.26 to 1.06.
4. (Original) The blood filter device according to claim 3, wherein the ratio h/r is in a range from 0.44 to 0.91.
5. (Previously presented) The blood filter device according to claim 1, wherein a ratio d/r of a depth d of the bottom portion to an inner diameter r of the bottom portion on a filter retaining portion side is in a range from 0.11 to 0.30.
6. (Previously presented) The blood filter device according to claim 1, wherein an inner diameter r of the dome portion on a filter retaining portion side is 27 to 33 mm, and a height h of the dome portion is 7 to 35 mm.
7. (Original) The blood filter device according to claim 6, wherein the height h of the dome portion is 12 to 30 mm.
8. (Original) The blood filter device according to claim 6, wherein a depth d of the bottom portion is 3 to 10 mm.
9. (Original) The blood filter device according to claim 6, wherein a distance between adjacent pleats of the filter is 1.6 to 3.7 mm, and a height of each pleat is 5 to 30 mm.

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10. (Previously presented) The blood filter device according to claim 1, wherein the filter consists of a sheet-like mesh material having a function of filtering the foreign substance.

11. (Original) The blood filter device according to claim 1, wherein the filter retaining portion has a cylindrical cavity whose cross section taken in a horizontal direction is circular.

12. (Original) The blood filter device according to claim 1, wherein an outer peripheral length of an internal space of the dome portion is reduced toward the top of the dome portion.

13. (Original) The blood filter device according to claim 1, wherein an inner surface of the bottom portion has no recess or protrusion.

14. (Withdrawn) A method for producing a blood filter device, the blood filter device comprising:

a housing that comprises a dome portion forming an upper part of the housing, a filter retaining portion forming a middle part of the housing, and a bottom portion forming a lower part of the housing;

an inlet provided on a lateral portion of the dome portion so as to allow blood to flow into the dome portion horizontally and along an inner wall of the dome portion;

an air vent provided at a top of the dome portion;

a filter for filtering a foreign substance in the blood, the filter being disposed in the filter retaining portion; and

an outlet for the blood, the outlet being provided in the bottom portion,

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the blood filter device being configured so that the blood flows into the dome portion from the inlet, passes through the filter retaining portion, and then flows out from the outlet,

the method comprising:

forming the filter by folding a sheet-like filter member so as to have a plurality of pleats with enveloping surfaces connecting top ends of the respective pleats being flat so that the filter as a whole has a plate-shaped outer shape;

disposing the filter in a cavity of the filter retaining portion of the housing so that the flat enveloping surfaces extend horizontally; and

filling a space between an inner side wall of the filter retaining portion and an outer peripheral portion of the filter with a resin while applying a centrifugal force that is caused by rotation around a center of the filter retaining portion and acts horizontally and then hardening the resin, thereby fixing the filter to the inner side wall of the filter retaining portion with the resin.

15. (Withdrawn) The method according to claim 14, wherein holding ribs that extend vertically are provided at positions on the inner side wall of the filter retaining portion corresponding to end portions of the respective pleats, and

when disposing the filter in the cavity of the filter retaining portion, the end portions of the pleats are inserted to the holding ribs, respectively, so that the filter is temporarily held by the inner side wall of the filter retaining portion.

16. (Withdrawn) The method according to claim 14, wherein, for forming the housing, an upper half and a lower half that are to be joined to each other so that a joint between the upper half and the lower half is in the filter retaining portion of the housing are provided,

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the filter is disposed in a portion corresponding to the cavity of the filter retaining portion in one of the upper half and the lower half, and the other one of the upper half and the lower half is joined to the one of the upper half and the lower half, and thereafter, the sealing and the hardening of the resin are performed.